

### Dihybrid Crosses Key

1. In the garden pea, Mendel found that yellow seed color was dominant to green and round seed shape was dominant to shrunken. Determine the phenotypic and genotypic ratios for the F<sub>1</sub> generation and the phenotypic ratio for the F<sub>2</sub> if a plant with homozygous rounded yellow seeds is crossed with a plant with shrunken green seeds. (Y = yellow, y = green, R = round, r = shrunken) Show Punnett Squares.

Y- yellow y - green R-round r-shrunken

P<sub>1</sub> YYRR x yyrr

F<sub>1</sub> YyRr x YyRr (F<sub>1</sub>- phenotype- all yellow & round - 100%)  
(F<sub>1</sub> - genotype - 100% - YyRr)

	YR	Yr	yR	yr
YR	YYRR	YYRr	YyRR	YyRr
Yr	YYRr	YYrr	YyRr	Yyrr
yR	YyRR	YyRr	yyRR	yyRr
yr	YyRr	Yyrr	yyRr	yyrr

(F<sub>2</sub> - phenotypic ratio - 9 yellow round: 3 yellow shrunken: 3 grn round: 1 grn shrunken)

2. Tall tomato plants are produced by the action of a dominant allele T and dwarf plants by its recessive allele t. Hairy stems are produced by a dominant gene H and hairless stems by its recessive allele h. A dihybrid tall, hairy plant is crossed with a dwarf hairless tomato plant. Determine the phenotypic ratio for the F<sub>1</sub> generation. Show work. (Punnett Square).

T - tall, t - dwarf, H - hairy, h - hairless

P<sub>1</sub> TtHh x tt hh

	TH	Th	tH	th
th	TtHh			
th				
th				
th				

Student completes table & determines phenotypic ratio

3. Black coat color in Cocker Spaniels is dominant, while red coat color is recessive; solid pattern is dominant, while spotted pattern is recessive. A solid black male is mated to a solid red female and produces a litter of six pups: two solid black, two solid red, one black and white, and one red and white. Determine the genotypes of the parents. (B = black coat, b = red coat, S = solid pattern, s = spotted pattern) Show work.



Name \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_\_\_  
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